

In the Claims

1-26 (canceled)

27. (original) A method for manufacturing a carbon nanotube device with a tip comprising a carbon nanotube, the method comprising:

disposing a catalyst particle on a free end of a cantilever; and

contacting a carbon-containing gas to the catalyst particle at elevated temperature and growing a carbon nanotube from the catalyst particle.

28. (original) The method of claim 27, wherein disposing a catalyst particle on the free end of the cantilever comprises:

contacting the free end of the cantilever to a particle of oxide disposed on an electrically conductive substrate; and

applying an electric field between the free end and the substrate and reacting the oxide to form a catalyst.

29. (original) A method for manufacturing a carbon nanotube device, the method comprising:

forming an island of catalyst material; and

contacting the catalyst island with a carbon-containing gas and forming a carbon nanotube extending from the catalyst island.

30. (original) The method of claim 29, wherein forming an island of catalyst material includes forming the island of catalyst material on a top surface of a substrate.

31. (original) The method of claim 29, wherein contacting the catalyst island with a carbon-containing gas includes contacting the carbon-containing gas to the catalyst island for a period of time sufficient to form carbon nanotubes.

32. (original) The method of claim 29, further comprising heating the catalyst material, prior to contacting the catalyst island with a carbon-containing gas.

33. (original) The method of claim 29, wherein forming an island of catalyst material includes forming the island of catalyst material on a cantilever.

34. (original) The method of claim 29, wherein contacting the catalyst island with a carbon containing gas includes contacting the catalyst island with a carbon containing gas that has been reacted using a catalyst.

35. (original) The method of claim 29, further comprising reacting the carbon containing gas with a catalyst, prior to contacting the catalyst island with the carbon-containing gas and forming a carbon nanotube.

36. (original) The method of claim 29, wherein forming an island of catalyst material includes depositing an iron salt on a substrate and decomposing the iron salt, without mixing the iron salt with nanoparticles.

37. (previously presented) A method for manufacturing a carbon nanotube device, the method comprising:

- forming a layer of conductive material on an insulative substrate;
- etching a trench in the layer of conductive material and exposing the insulative substrate at the bottom of the trench;
- forming catalyst material on portions of the layer of conductive material at opposing sides of the trench; and
- heating the substrate while introducing a carbon feedstock gas to the catalyst material and growing an aligned carbon nanotube extending from the catalyst material and across the trench.

38. (withdrawn) A system for manufacturing a carbon nanotube device with a tip comprising a carbon nanotube, the system comprising:

means for disposing a catalyst particle on a free end of a cantilever; and
means for contacting a carbon-containing gas to the catalyst particle at elevated
temperature and growing a carbon nanotube from the catalyst particle.

39. (withdrawn) A system for manufacturing a carbon nanotube device with a tip
comprising a carbon nanotube extending from a cantilever having a catalyst particle
disposed on a free end thereof, the system comprising:

 a chamber adapted to contact a carbon-containing gas to the catalyst particle at
elevated temperature and to grow a carbon nanotube from the catalyst particle.

40. (withdrawn) The system of claim 39, further comprising:

 a deposition arrangement adapted to dispose a catalyst particle on a free end of a
cantilever.

41. (withdrawn) A system for manufacturing a carbon nanotube device, the system
comprising:

 means for forming an island of catalyst material; and
 means for contacting the catalyst island with a carbon-containing gas and forming
a carbon nanotube extending from the catalyst island.

42. (withdrawn) A system for manufacturing a carbon nanotube device, the system
comprising:

 a deposition arrangement adapted to form an island of catalyst material; and
 a chamber adapted to contact the catalyst island with a carbon-containing gas and
form a carbon nanotube extending from the catalyst island.

43. (withdrawn) The system of claim 42, wherein the chamber is adapted to create
conditions suitable for reacting the carbon-containing gas with the catalyst island for
growing the carbon nanotube.

44. (withdrawn) The system of claim 42, wherein the chamber comprises:

a chemical vapor deposition (CVD) apparatus configured and arranged for growing carbon nanotubes.

45. (withdrawn) The system of claim 44, wherein the CVD apparatus is configured and arranged to introduce carbon feedstock gas for growing carbon nanotubes in the chamber.

46. (withdrawn) The system of claim 45, wherein the CVD apparatus is configured and arranged to introduce the carbon feedstock gas to a catalyst for growing carbon nanotubes in the chamber.

47. (withdrawn) The system of claim 42, wherein the chamber is configured and arranged to grow carbon nanotubes from a catalyst island on a substrate in the chamber.

48. (withdrawn) The system of claim 42, wherein the chamber is further configured and arranged to grow a carbon nanotube extending between the catalyst island and a circuit node.

49. (withdrawn) The system of claim 42, wherein the chamber is further configured and arranged to grow a circuit including a carbon nanotube extending between two circuit nodes and adapted for conducting electricity between the two circuit nodes.

50. (withdrawn) The system of claim 42, wherein the chamber is further configured and arranged to grow a carbon nanotube extending from a cantilever tip.

51. (withdrawn) The system of claim 50, wherein the chamber is further configured and arranged for holding a wafer including a multitude of cantilever tips and to grow carbon nanotubes extending from a plurality of the multitude of cantilever tips.

52. (withdrawn) The system of claim 42, wherein the chamber is further configured and arranged to grow a carbon nanotube extending between two catalyst islands.

53. (withdrawn) The system of claim 42, wherein the chamber is further configured and arranged to grow a carbon nanotube from a catalyst island including an alumina-supported iron catalyst.

54. (withdrawn) The system of claim 42, wherein the chamber is further configured and arranged to grow a plurality of carbon nanotubes extending from catalyst islands patterned on a substrate.

55. (withdrawn) The system of claim 42, further comprising a gas supply configured and arranged for introducing the carbon feedstock gas to the chamber.

56. (withdrawn) The system of claim 55, wherein the gas supply is configured and arranged for introducing a carbon feedstock gas including Methane to the chamber to grow the carbon nanotube.

57. (withdrawn) The system of claim 42, wherein the chamber is configured and arranged to grow the carbon nanotube from catalyst particles lithographically patterned on a substrate.

58. (withdrawn) The system of claim 42, wherein the chamber is configured and arranged to grow the carbon nanotube at a temperature of less than about 1000 degrees Celsius.

59. (withdrawn) The system of claim 58, wherein the chamber is configured and arranged to grow the carbon nanotube at a temperature of between about 850 and 100 degrees Celsius.

60. (withdrawn) A system for manufacturing a carbon nanotube device extending from a catalyst island, the system comprising:

 a chamber; and
 a gas supply configured and arranged with the chamber for contacting a catalyst island in the chamber with a carbon-containing gas and forming a carbon nanotube

extending from the catalyst island.

61. (withdrawn) The system of claim 60, wherein the gas supply and the chamber are adapted to contact the carbon-containing gas to the catalyst island for a period of time sufficient to form carbon nanotubes.
62. (withdrawn) The system of claim 60, wherein the chamber is further adapted for heating the catalyst island, prior to contacting the catalyst island with a carbon-containing gas.
63. (withdrawn) The system of claim 60, wherein the gas supply is configured and arranged for contacting the catalyst island with a carbon containing gas that has been reacted using a catalyst.
64. (withdrawn) The system of claim 60, wherein the gas supply is adapted to react the carbon containing gas with a catalyst, prior to contacting the catalyst island with the carbon-containing gas and forming a carbon nanotube.
65. (withdrawn) The system of claim 60, wherein the chamber is configured and arranged to heat a substrate to decompose a catalyst material to form the catalyst island.
66. (withdrawn) A system for manufacturing a carbon nanotube device, the system comprising:
 - means for forming a layer of conductive material on an insulative substrate;
 - means for etching a trench in the layer of conductive material and exposing the insulative substrate at the bottom of the trench;
 - means for forming catalyst material on portions of the layer of conductive material at opposing sides of the trench; and
 - means for heating the substrate while introducing a carbon feedstock gas to the catalyst material and growing an aligned carbon nanotube extending from the catalyst material and across the trench.

67. (withdrawn) A system for manufacturing a carbon nanotube device, the system comprising:

 a metal deposition arrangement adapted to form a layer of conductive material on an insulative substrate;

 an etching arrangement adapted to etch a trench in the layer of conductive material and expose the insulative substrate at the bottom of the trench;

 a catalyst deposition arrangement adapted to form catalyst material on portions of the layer of conductive material at opposing sides of the trench; and

 a chamber adapted to heat the substrate while introducing a carbon feedstock gas to the catalyst material and to grow an aligned carbon nanotube extending from the catalyst material and across the trench.

68. (withdrawn) The system of claim 67, wherein the metal deposition arrangement and the catalyst deposition arrangement are the same deposition arrangement and wherein the catalyst includes metal.

69. (withdrawn) The system of claim 67, wherein the etching arrangement is adapted to etch a trench in the exposed insulative substrate.

70. (previously presented) The method of claim 37, further comprising etching a trench in the exposed insulative substrate.